PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or Agent's file reference	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/FR 03/02907	International filing date *(day/month/year)* 03.10.2003	Priority date *(day/month/year)* 11.10.2002
International Patent Classification (IPC) or national classification and IPC A61K31/17		
Applicant LMD et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets including this title page.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Instruction 607 of Administrative Instructions of the PCT).

   These annexes consist of a total of 6 sheets.

3. This report contains indications relating to the following items:

I	☒	Basis of the report
II	☐	Priority
III	☒	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	☐	Lack of unity of invention
V	☒	Reasoned statement according to Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI	☐	Certain documents cited
VII	☐	Certain defects in the international application
VIII	☐	Certain observations on the international application

Date of submission of the demand 10.05.2004	Date of completion of this report 24.01.2005
Name and mailing address of the IPEA European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Netherlands Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized officer: Hoff, P Telephone No. +31 70 340-3520

I. Basis of the report

1. This report has been drawn up on the basis of the following elements *(the replacement sheets received by the receiving office in response to an invitation according to Article 14 are considered in the present report as "originally filed" and are not annexed to the report as they contain no amendments (Rules 70.16 and 70.17).):*

Description, pages:

1-18 as originally filed

Claims, No.:

1-13 received on 22.11.2004 with the letter of 17.11.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

☐ the description, pages:

☐ the claims, Nos.:

☐ the drawings, sheets:

5. ☒ This report has been written disregarding (some of) the amendments, which were considered as going beyond the description of the invention, as filed, as is indicated below (Rule 70.2(c)):

   (All replacement sheets comprising amendments of this nature should be indicated in point 1 and attached to this report).

   see separate sheet

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

   ☐ the entire international application,

   ☒ claims Nos. 13, regarding the industrial applicability

   because:

   ☒ the said international application, or the said claims Nos. 13 relate to the following subject matter which does not require an international preliminary examination *(specify)*:

   see separate sheet

   ☐ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. are so unclear that no meaningful opinion could be formed *(specify)*:

   ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

   ☐ no international search report has been established for said claims Nos.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

   ☐ the written form has not been furnished or does not comply with the standard.

   ☐ the computer readable form has not been furnished or does not comply with the standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty	Yes:	Claims	1-9,11-13
	No:	Claims	10
Inventive Step	Yes:	Claims	1-9,11-13
	No:	Claims	10
Industrial Applicability	Yes:	Claims	1-12
	No:	Claims	13 (see separate sheet)

2. Citations and explanations

see separate sheet

With regard to point I
Basis of the opinion

1. The amendments introduced with the letter dated 17 November 2004 result in the subject matter of the application being extended beyond the content of the application as filed. Consequently, they go against the provisions of Article 34(2) b) PCT. The amendments concerned are as follows:
the use of a thiourea of formula I or IIa, IIb, III against dry skin and fatigue (claim 13).

In fact, dry skin and fatigue were described, in the application as filed, only as examples of diseases that can result from cell and DNA damage. However, the use of the thioureas of the present invention in the treatment of these diseases is not mentioned therein.

2. Consequently, the present opinion was established disregarding the dry skin and fatigue diseases mentioned in claim 13, since they were considered to go beyond the disclosure of the invention as filed.

With regard to point III
Non-establishment of opinion regarding novelty, inventive step and industrial applicability

The present authority considers that the subject matter of claim 13, more particularly the treatment against ageing, is pursuant to the provisions of Rule 67.1 (iv) PCT. For this reason, no opinion will be given with regard to the question of whether the subject matter of this claim is capable of industrial application (Article 34(4) a) i) PCT.

With regard to point V

Reasoned statement with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: Journal of Agricultural And Food Chemistry (1999), 47(8), 3121-3123 (XP1159126)

D2: Australian Journal of Biological Sciences (1963), 16, 177-91 (XP8018337)

The present application does not satisfy the conditions stated in Article 33(1) PCT, since the subject matter of claim 10 is not in accordance with the criterion of novelty defined by Article 33(2) PCT.
Specifically, claim 10 as formulated in the present application relates to a cosmetic composition, characterized only by the presence of a thiourea of general formula (I). This claim 10 also covers the products of formula (I) as such, and is therefore equivalent to a product claim claiming the thioureas of general formula (I). Thioureas corresponding to general formula (I) are already known (see D1 and D2).
In addition, the thioureas of general formula (I) are described in aqueous solution in D1 and D2 (water being, of course, a cosmetically acceptable excipient).
The novel depigmenting indication mentioned in claim 10 has no influence on novelty of the composition as such.
Consequently, the subject matter of claim 10 is therefore not novel.

2. The subject matter of claims 1-9 and 11-13 is, however, novel and involves an inventive step in view of the documents of the prior art, and therefore satisfies the requirements of Articles 33(2) and 33(3) PCT.
2.1. None of the documents of the state of the art discloses the thioureas of the present invention as a medicinal product, nor their cosmetic use as a depigmenting agent. The thioureas of general formulae I, IIa, IIb and III, with the exception of N,N-di(methylsulphinylbutyl)thiourea and of dicheirolin thiourea, are also novel.
2.2. The problem that the present invention proposes to solve consists in providing novel anti-mutagenic and/or anti-carcinogenic medicinal products that also have a depigmenting action.
No indication was found in the state of the art that could have led those skilled in the

art to choose the thioureas of the present invention in order to solve the problem posed. In fact, no therapeutic or cosmetic activity of any kind was described for the latter in the documents of the prior art.

3. Claim 13 covers the use of a substance in a medical treatment method.
No unified criteria exists among the PCT member states for determining whether claim 13 is capable of industrial application. The patentability can also depend on the manner in which the claims have been formulated. Thus, the European Patent Office does not consider the subject matter of claims of use of a compound for medical purposes to be capable of industrial application. On the other hand, claims relating to a known compound, for a first use for medical purposes, and also claims relating to the use of such a compound in the production of a medicinal product for the purpose of a novel medical treatment, can be accepted.